MICROCOPY RESOLUTION TEST CHART
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During the past three months, the project team has focused on ; (1) analyses of type I, II, and III device characteristics; (2) definition of device measurement parameters using minimum number of test fixtures; (3) selection of the system computer and operating system.

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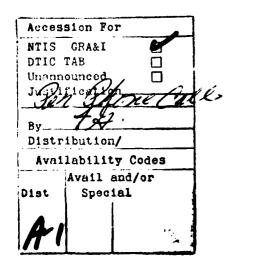**DD FORM 1473, 83 APR**   EDITION OF 1 JAN 73 IS OBSOLETE.

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"AUTOMATIC MICROWAVE SEMICONDUCTOR
DEVICE TESTING"

FIRST QUARTERLY PROGRESS REPORT
(JULY 16, 1985 to OCTOBER 15, 1985)

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1st Quarter Report

(July 16 - October 15)

During the past three months, the project team has focused on; (1) analyses of type I, II, and III device characteristics; (2) definition of device measurement parameters using minimum number of test fixtures; (3) selection of the system computer and operating systems.

The preliminary selection of type I, II and III devices was presented at the meeting on September 26, 1985. As directed by Mr. J. Kelly at the same meeting, high power devices would be added to the list and the test fixtures would be selected for universal purpose. Maury Microwave Corporation is considered as the prime supplier of the test fixtures. Due to different device package types such as IMPATT diodes, other test fixtures would be needed.

The preliminary device measurement parameters are defined as follows:

(1) GaAs Varactor:

      (a) Rs vs bias

      (b) Q vs bias

      (c) C vs bias

      (d) $\left(\dfrac{fmax}{fmax}\right)^2 = \left(\dfrac{Cmin}{Cmin}\right)$

      (e) $\left(f_1 * Q_1\right) = \left(F_2 * Q_2\right)$

(2) IMPATT Diode: (a) Efficiency vs bias

      (b) RF power vs bias

      (c) Impedance = ($\pm$ Real $\pm$ Imaginary Components)

      (d) Impedance vs driven signal

(3) GaAs FET/Si Bipolar Transistor:

      (a) S-Parameters vs frequency

          S-Parameters vs bias

          S-Parameters vs driver signal

          S-Parameters vs gain

          S-Parameters vs stability

          S-Parameters vs input VSWR

          S-Parameters vs output VSWR

(4) GaAs/Si Beam Lead Mixer Diode:

        (a) Capacitance

        (b) Break-down voltage

        (c) Rs vs bias current

        (d) Noise figure vs driver signal

(5) GaAs/Si Beam Lead Pin Diode:

        (a) Capacitance

        (b) Break-down voltage

        (c) Rs vs bias current

        (d) Rs vs ½ break-down voltage

(6) Phase Shifter Diode:

        (a) Capacitance

        (b) Insertion Loss

        (c) Phase-shift (insertion phase)

(7) Amplifier Diode

        (a) Output power vs driver signal

        (b) Gain vs driver signal

(8) Mixer Quad Diode:

        (a) Noise figure vs driver signal

        (b) Capacitance

        (c) Conversion loss

        (d) Harmonic

(9) Detector Diode:

        (a) TSS vs driver signal

        (b) Pulse parameters

A system computer will be selected between the HP300 series and the IBM PC/XT The problem with the HP300 computer is its possible non-compatability with the HP8510. The problem with the HP9836 computer is its potential obsolescence. On the other hand the IBM PC/XT is a popular computer and will assure a wider support from the industries. We now have to ensure that EESOF Corporation will provide all communication software support between the HP8510 and the IBM PC/XT before we make a final selection on the computer.

END

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